

### 3.11 Sum & Difference Identities

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Use a sum or difference identity to find an exact value. Show work!

1)  $\sin 15^\circ$  1) \_\_\_\_\_

2)  $\sin 75^\circ$  2) \_\_\_\_\_

3)  $\cos \frac{\pi}{12}$  3) \_\_\_\_\_

4)  $\tan \frac{5\pi}{12}$  4) \_\_\_\_\_

5)  $\cos \frac{7\pi}{12}$  5) \_\_\_\_\_

Write the expression as the sine, cosine, or tangent of an angle. Show work!

6)  $\sin 42^\circ \cos 17^\circ - \cos 42^\circ \sin 17^\circ$  6) \_\_\_\_\_

7)  $\sin \frac{\pi}{5} \cos \frac{\pi}{2} + \cos \frac{\pi}{5} \sin \frac{\pi}{2}$  7) \_\_\_\_\_

8)  $\frac{\tan 19^\circ + \tan 47^\circ}{1 - \tan 19^\circ \tan 47^\circ}$  8) \_\_\_\_\_

9)  $\cos \frac{\pi}{7} \cos x - \sin \frac{\pi}{7} \sin x$  9) \_\_\_\_\_

10)  $\sin 3x \cos x - \cos 3x \sin x$  10) \_\_\_\_\_

$$11) \frac{\tan 2y + \tan 3x}{1 - \tan 2y \tan 3x}$$

11) \_\_\_\_\_

Use sum or difference identities (not calculator) to solve the equation exactly. Show work!

$$12) \sin 2x \cos x = \cos 2x \sin x$$

12) \_\_\_\_\_

Prove the identity. Show work!

$$13) \sin \left( \frac{\pi}{2} - u \right) = \cos u$$

13) \_\_\_\_\_

$$14) \csc \left( \frac{\pi}{2} - u \right) = \sec u$$

14) \_\_\_\_\_